

AUSTRALIAN JOURNAL OF CHEMISTRY

VOLUME 8



MELBOURNE

1955

AUSTRALIAN JOURNAL OF CHEMISTRY

Published by the Commonwealth Scientific and Industrial Research Organization, in collaboration with the Australian National Research Council and the Royal Australian Chemical Institute, and under the general direction of the Editorial Board (Dr. N. S. Noble (Chairman), Professor J. S. Anderson, Professor Sir Macfarlane Burnet, Professor L. H. Martin, and Professor J. G. Wood). Volumes 1 to 5 of the Australian Journal of Physics and the Australian Journal of Chemistry issued as the Australian Journal of Scientific Research, Series A: Physical Sciences.

Issued quarterly, 30/- per annum

EDITORIAL ADVISORY COMMITTEE

Chairman and Editor: Dr. N. S. Noble

Members: Professor J. S. Anderson

Professor N. S. Bayliss

Professor R. J. Le Fèvre

Dr. I. W. Wark

All inquiries and manuscripts should be forwarded to:

The Editor,
Australian Journal of Chemistry,
Commonwealth Scientific and Industrial Research Organization,
314 Albert Street, East Melbourne, C.2, Victoria

Printed by Australasian Medical Publishing Company Limited, Sydney

CONTENTS

NUMBER 1, FEBRUARY 1955

	PAGE
Enthalpies and Entropies of Ion-Exchange Reactions. By J. F. Duncan	1
The Behaviour of Fluids of Quasi-Spherical Molecules. IV. Concerning Trouton's and Hildebrand's Rules. By S. D. Hamann	21
Solvent Effects in Infra-Red Spectra: C=O, C-H, and C-C Vibrations. By N. S. Bayliss, A. R. H. Cole, and L. H. Little	26
The Calculation of Atomic Polarizations for Benzene and Certain Other Polyatomic Molecules. By R. J. W. Le Fèvre and D. A. A. S. Narayana Rao	39
An Interface Reaction of Hexavalent Chromium: The Polarographic Behaviour of HCrO_4^- and CrO_4^{2-} . By J. H. Green and A. Walkley	51
Liquid-Vapour Equilibria. VI. The Systems Acetonitrile + Benzene at 45 °C and Acetonitrile + Nitromethane at 60 °C. By I. Brown and F. Smith	62
The Quinone-Hydroquinone Character of Activated Carbon and Carbon Black. By V. A. Garten and D. E. Weiss	68
Reduction by Dissolving Metals. XII. The Conversion of 2,5- into 2,3-Dihydroanisoles by Means of Potassium Amide in Ammonia. By A. J. Birch and Patricia Hextall	96
The Chemistry of Glyoxaline, Pyrrole, and Pyrazole. By R. D. Brown..	100
Colouring Matters of Australian Plants. IV. Haemocorin: A Unique Glycoside from <i>Haemodorum corymbosum</i> Vahl. By R. G. Cooke and W. Segal	107
Alkaloids of <i>Evodia alata</i> F. Muell. By R. J. Gell, G. K. Hughes, and E. Ritchie	114
The Chemical Constituents of Australian <i>Flindersia</i> Species. VII. The Synthesis of Derivatives of Kokusagininic and Skiammianinic Acids. By R. F. C. Brown	121
Geijerin: A New Coumarin from the Bark of <i>Geijera salicifolia</i> Schott. By F. N. Lahey and D. J. Wluka	125
The Alkaloids of <i>Kopsia longiflora</i> Merrill. I. Isolation of the Alkaloids. By W. D. Crow and M. Michael	129
The Alkaloids of <i>Lupinus varius</i> L. I. Isolation of the Alkaloids. By W. D. Crow and N. V. Riggs	136

Short Communications

The Dipole Moments of Bromobenzene, Methyl Iodide, and Iodobenzene as Vapours. By R. J. W. Le Fèvre and D. A. A. S. Narayana Rao..	140
The Isolation of Ergosterol from <i>Stachybotrys atra</i> Corda. By R. Thomas	142
The Use of Mannich Base Methiodides in the Diene Reaction. By A. J. Birch and M. Slaytor	144
The Lanthanum Content of South Pacific Phosphorites. By R. C. Vickery	145

NUMBER 2, MAY 1955

	PAGE
The Second Virial Coefficients of Some Gas Mixtures. By S. D. Hamann, J. A. Lambert and R. B. Thomas	149
Polarography of Some Coordination Compounds of Platinum. I. Hexamineplatinum(IV) and Tris(ethylenediamine)platinum(IV) Ions. By J. R. Hall and R. A. Plowman	158
Polarography of Some Coordination Compounds of Platinum. II. Ions of the Halogenopentammineplatinum(IV) Type. By J. R. Hall and R. A. Plowman	168
A Radioactive Tracer Study of the Behaviour of Long Chain Organic Molecules on Solid Surfaces. By J. E. Young	173
The Mechanism of the Alkali Catalysed Phenol-Formaldehyde Reaction. By J. S. Fitzgerald and R. J. L. Martin	194
Studies on Magnesium and Calcium Oxychlorides. By Thaisa Demediuk, W. F. Cole, and H. V. Hueber	215
X-ray, Thermal, and Dehydration Studies on Magnesium Oxychlorides. By W. F. Cole and Thaisa Demediuk	234
Chemical Constitution and Anthelmintic Activity. II. Preparation of Some Analogues of Phenothiazine. By J. Cymerman-Craig, W. P. Rogers, and G. P. Warwick	252
The Partial Degradation of Ring A of Lanostenol. By R. G. Curtis and R. Schoenfeld	258
Studies on Xanthorrhoea Resins. II. Xanthorrhoein and Hydroxypaeonol. By A. J. Birch and Patricia Hextall	263
Water-Soluble Constituents of Fruit. II. The Separation of Acids on Anion-Exchange Resins: The Isolation of <i>l</i> -Quinic Acid from Apricots. By E. F. L. J. Anet and T. M. Reynolds	267
Water-Soluble Constituents of Fruit. III. An Examination of the Sugars and Polyols of Apricots, Peaches, Pears, and Apples by Paper Chromatography. By A. S. F. Ash and T. M. Reynolds	276
Water-Soluble Constituents of Fruit. IV. The Organic Acids in Peaches. By E. F. L. J. Anet and T. M. Reynolds	280

Short Communications

Reaction Kinetics at 30000 Atmospheres. By H. G. David, S. D. Hamann, and S. J. Lake	285
Some Derivatives of 2-Bromoallylamine. By J. A. Lambertson	289
The Isolation of Chrysophanic Acid and Physcion from <i>Rumex hymenosepalus</i> Torr. By W. E. Hillis	290
Corrigenda	292

NUMBER 3, AUGUST 1955

	PAGE
The Thermodynamic Properties of Sulphonated Polystyrene Exchangers Saturated with a Single Cation. By J. F. Duncan	293
Theory of Alternating Current Polarography. II. Significance of the Heyrovský-Ilkovič Equation and its Relation to the Production of A.C. Polarographic Waves. By B. Breyer, H. H. Bauer, and S. Hacobian	312
Theory of Alternating Current Polarography. III. Frequency of Alternating Field and Reaction Rate. By B. Breyer, H. H. Bauer, and S. Hacobian	322
The Polarizations of Liquids. By R. J. W. Le Fèvre and D. A. A. S. Narayana Rao	329
Intensity Distribution in Long-Spacing X-Ray Patterns of a Series of Even Long-Chain <i>n</i> -Alcohols and <i>n</i> -Acids. By J. Fridrichsons ..	339
An Infra-Red Spectroscopic Study of Naphthalene Substitution. By R. L. Werner, W. Kennard, and D. Rayson	346
The Infra-Red Spectra of the Borate Esters. By R. L. Werner and K. G. O'Brien	355
Heats of Mixing of Alcohol Solutions. By I. Brown and W. Fock ..	361
On the Low-Temperature Oxidation of <i>iso</i> Butane and Propylene. By J. J. Batten and M. J. Ridge	370
Synthetic Antispasmodics. I. Some 1,1-Diaryl-3-(4'-methyl-1'-piperazino)-1-propenes. By J. Cymerman-Craig and R. J. Harrison ..	378
Synthetic Antispasmodics. II. Some Acyclic Analogues of Papaverine. By J. Cymerman-Craig, K. V. Martin, and P. C. Wailes	385
Iodination of <i>N</i> -Methylquinolinium Salts. By J. B. Adams, J. Cymerman-Craig, C. Ralph, and D. Willis	392
The Synthesis and Properties of Some Glycosides. By M. A. Jermyn ..	403
The Synthesis of Angustifolionol. By A. J. Birch, Patricia Elliott, S. K. Mukerjee, T. R. Rajagopalan, T. R. Seshadri, and S. Varadarajan	409
Colouring Matters of Australian Plants. V. Haemocorin: The Chemistry of the Aglycone. By R. G. Cooke and W. Segal	413
The Chemical Constituents of Australian <i>Flindersia</i> Species. VIII. The Structure of Maculine. By R. J. Gell, The Late G. K. Hughes, and E. Ritchie	422
Studies of Waxes. IX. The Normal Alcohols of Wool Wax. By K. E. Murray and R. Schoenfeld	424
Studies of Waxes. X. The Diols of Carnauba Wax. By K. E. Murray and R. Schoenfeld	432
Studies of Waxes. XI. The Hydroxy Acids of Carnauba Wax. By K. E. Murray and R. Schoenfeld	437
Water-Soluble Constituents of Fruit. V. Sugars and Polyols of the Apricot Fruit. By A. S. F. Ash and T. M. Reynolds	444

NUMBER 3, AUGUST 1955 (*Continued*)

	PAGE
<i>Short Communications</i>	
The Molecular Complexity of Polar Organic Vapours. By L. A. Bennett and R. G. Vines	451
The Influence of $-I+M$ Groups in Aromatic S_N Reactions. By R. L. Heppollette, M. Liveris, P. G. Lutz, J. Miller, and V. A. Williams ..	454
Solutions of Phenylidoso Acetate. By W. D. Johnson and N. V. Riggs	457
The Occurrence of Reserpine in <i>Alstonia constricta</i> F. Muell. By W. D. Crow and Yolande M. Greet	461
Occurrence of Supinine in <i>Tournefortia sarmentosa</i> Lam. By H. C. Crowley and C. C. J. Culvenor	464
Corrigendum	465

NUMBER 4, NOVEMBER 1955

	PAGE
Alternating Current Polarography of Organic Compounds. II. Quinone and Hydroquinone. By B. Breyer and H. H. Bauer	467
Alternating Current Polarography of Organic Compounds. III. Chlor-anilic Acid. By B. Breyer and H. H. Bauer	472
Alternating Current Polarography of Organic Compounds. IV. <i>peri</i> -Naphthenone. By B. Breyer and H. H. Bauer	480
The Vapour Pressure of Solid Cadmium. By T. A. O'Donnell ..	485
Measurement of the Vapour Pressure of Bismuth by a Radioactive Tracer Technique. By T. A. O'Donnell	493
Liquid-Vapour Equilibria. VII. The Systems Nitromethane+Benzene and Nitromethane+Carbon Tetrachloride at 45 °C. By I. Brown and F. Smith	501
Geometric Isomerism in Some Unsaturated Aliphatic Ketones. By H. H. Hatt and J. A. Lamberton	506
Reduction by Dissolving Metals. XIII. The Production of Aldehydes from Amidines, Amides, and Related Compounds. By A. J. Birch, J. Cymerman-Craig, and M. Slaytor	512
Hydroaromatic Steroid Hormones. IV. (+)-19-Nor-D-homotestosterone. By A. J. Birch and R. J. Harrison	519
Barbaloin. I. Some Observations on its Structure. By A. J. Birch and F. W. Donovan	523
Studies in Relation to Biosynthesis. V. The Structures of Some Natural Quinones. By A. J. Birch and F. W. Donovan	529
Studies in Relation to Biosynthesis. VI. Rheosmin. By L. Bauer, A. J. Birch, and A. J. Ryan	534
Studies in Relation to Biosynthesis. VII. 2-Hydroxy-6-methylbenzoic Acid in <i>Penicillium griseofulvum</i> Dierckx. By A. J. Birch, R. A. Massy-Westropp, and C. J. Moye	539
Studies in the Chemistry of Phenothiazine. I. Substituted <i>o</i> -Amino-benzenethiols. By K. J. Farrington and W. K. Warburton ..	545
A New Sesquiterpene Alcohol from <i>Himantandra baccata</i> Bail. By A. J. Birch and K. M. C. Mostyn	550
Alkaloids of the Australian Rutaceae: <i>Evodia xanthoxyloides</i> F. Muell. V. A Note on the Constitution of Evolidine. By F. W. Eastwood, the Late G. K. Hughes, and E. Ritchie. With X-Ray Study. By R. M. Curtis	552
The Alkaloids of <i>Erectites quadridentata</i> D.C. By C. C. J. Culvenor and L. W. Smith	556

Short Communications

The Dipole Moment of Acenaphthene. By J. Y. H. Chau and R. J. W. Le Fèvre	562
The Self-Retardation of the Autoxidation of Benzaldehyde. By M. F. R. Mulcahy and I. C. Watt	564
The Stability Constant of the Tris-1,10-phenanthroline Ferrous Ion. By H. A. McKenzie	569
Corrigendum	570

INDEX

	PAGE		PAGE
A.C. Polarographic Waves, Significance of the Heyrovsky-Ilkovič Equation and its Relation to the Production of	312	Amides, Amidines, and Related Compounds, The Production of Aldehydes from	512
Acenaphthene, The Dipole Moment of	562	<i>o</i> -Aminobenzenethiols, Substituted	545
Acetonitrile + Benzene and Acetonitrile + Nitromethane, The Systems at 45 and 60 °C Respectively	62	Anet, E. F. L. J., and Reynolds, T. M.—	
Adams, J. B., Cymerman-Craig, J., Ralph, C., and Willis, D.—		Water-Soluble Constituents of Fruit—	
Iodination of <i>N</i> -Methylquinolinium Salts	392	II. The Separation of Acids on Anion-Exchange Resins: The Isolation of <i>l</i> -Quinic Acid from Apricots ..	267
Aglycone, The Chemistry of the	413	IV. The Organic Acids in Peaches	280
Alcohol, A New Sesquiterpene ..	550	Angustifolionol, Synthesis of ..	409
Alcohol Solutions, Heats of Mixing of	361	Anion-Exchange Resins, The Separation of Acids on ..	267
<i>n</i> -Alcohols and <i>n</i> -Acids, Intensity Distribution in Long-Spacing X-Ray Patterns of a Series of Even Long-Chain ..	339	Anisoles, 2,5-Dihydro-, Conversion into 2,3-Dihydroanisoles ..	96
Aldehydes, The Production of, from Amidines, Amides, and Related Compounds	512	Anthelmintic Activity, Chemical Constitution and	252
Alkaloids of <i>Erectites quadridentata</i> D.C.	556	Antispasmodics, Synthetic ..	378, 385
Alkaloids of <i>Evodia alata</i> F. Muell.	114	Apricot Fruit, Sugars and Polyols of the	444
Alkaloids of <i>Kopsia longiflora</i> Merrill	129	Apricots, Peaches, Pears, and Apples, An Examination of the Sugars and Polyols of ..	276
Alkaloids of <i>Lupinus varius</i> L. ..	136	Apricots, The Isolation of <i>l</i> -Quinic Acid from	267
Alkaloids of the Australian Rutaceae	552	Aromatic <i>S_N</i> Reactions, The Influence of $-I+M$ Groups in	454
<i>Alstonia constricta</i> F. Muell., The Occurrence of Reserpine in	461	Ash, A. S. F., and Reynolds, T. M.—	
Alternating Current Polarography of Organic Compounds	467, 472, 480	Water-Soluble Constituents of Fruit—	
Alternating Current Polarography, Theory of	312, 322	III. An Examination of the Sugars and Polyols of Apricots, Peaches, Pears, and Apples by Paper Chromatography ..	276
Alternating Field and Reaction Rate, Frequency of	322	V. Sugars and Polyols of the Apricot Fruit	444

	PAGE		PAGE
Atomic Polarizations for Benzene and Certain Other Polyatomic Molecules, The Calculation of	39	Birch, A. J., Elliott, Patricia, Mukerjee, S. K., Rajagopalan, T. R., Seshadri, T. R., and Varadarajan, S.—The Synthesis of Angustifolionol	409
Autoxidation of Benzaldehyde, The Self-Retardation of ..	564	Birch, A. J., and Harrison, R. J.—Hydroaromatic Steroid Hormones. IV. (+)-19-Nor-D-homotestosterone	519
Barbaloin	523	Birch, A. J., and Hextall, Patricia—Reduction by Dissolving Metals. XII. The Conversion of 2,5- into 2,3-Dihydroanisoles by Means of Potassium Amide in Ammonia	96
Batten, J. J., and Ridge, M. J.—On the Low-Temperature Oxidation of <i>iso</i> Butane and Propylene	370	Studies on <i>Xanthorrhoea</i> Resins. II. <i>Xanthorrhoein</i> and <i>Hydroxypaeonol</i> ..	263
Bauer, H. H.— <i>See</i> Breyer, B. 467, 472, 480 <i>See</i> Breyer, B., and Hacobian, S.	312, 322	Birch, A. J., Massy-Westropp, R. A., and Moye, C. J.—Studies in Relation to Biosynthesis. VII. 2-Hydroxy-6-methylbenzoic Acid in <i>Penicillium griseofulvum</i> Dierckx	539
Bauer, L., Birch, A. J., and Ryan, A. J.—Studies in Relation to Biosynthesis. VI. Rheosmin ..	534	Birch, A. J., and Mostyn, K. M. C.—A New Sesquiterpene Alcohol from <i>Himantandra baccata</i> Bail.	550
Bayliss, N. S., Cole, A. R. H., and Little, L. H.—Solvent Effects in Infra-Red Spectra: C=O, C-H, and C-C Vibrations	26	Birch, A. J., and Slaytor, M.—The Use of Mannich Base Methiodides in the Diene Reaction	144
Bennett, L. A., and Vines, R. G.—The Molecular Complexity of Polar Organic Vapours ..	451	Birch, A. J.— <i>See</i> Bauer, L., and Ryan, A. J.	534
Benzaldehyde, The Self-Retardation of the Autoxidation of	564	Bismuth, Measurement of the Vapour Pressure of, by a Radioactive Tracer Technique	493
Benzoic Acid, 2-Hydroxy-6-Methyl-	539	Borate Esters, The Infra-Red Spectra of the	355
Biosynthesis, Studies in Relation to	529, 534, 539	Breyer, B., and Bauer, H. H.—Alternating Current Polarography of Organic Compounds—	
Birch, A. J., Cymmerman-Craig, J., and Slaytor, M.—Reduction by Dissolving Metals. XIII. The Production of Aldehydes from Amidines, Amides, and Related Compounds ..	512	II. Quinone and Hydroquinone	467
Birch, A. J., and Donovan, F. W.—Barbaloin. I. Some Observations on its Structure ..	523	III. Chloranilic Acid ..	472
Studies in Relation to Biosynthesis. V. The Structures of Some Natural Quinones	529	IV. <i>peri</i> Naphthenone ..	480

	PAGE		PAGE
Breyer, B., Bauer, H. H., and Hacobian, S.— Theory of Alternating Current Polarography— II. Significance of the Heyrovsky - Ilkovič Equation and its Relation to the Production of A.C. Polarographic Waves ..	312	Carnauba Wax, The Diols of ..	432
III. Frequency of Alternating Field and Reaction Rate ..	322	Carnauba Wax, The Hydroxy Acids of ..	437
2-Bromoallylamine, Some Derivatives of ..	289	Chau, J. Y. H., and Le Fèvre, R. J. W.— The Dipole Moment of Acenaphthene ..	562
Bromobenzene, Methyl Iodide, and Iodobenzene, The Dipole Moments of, as Vapour ..	140	Chloranilic Acid, Alternating Current Polarography of ..	472
Brown, I., and Fock, W.— Heats of Mixing of Alcohol Solutions ..	361	Chromium, Hexavalent, An Interface Reaction of ..	51
Brown, I., and Smith, F.— Liquid-Vapour Equilibria— VI. The Systems Acetonitrile + Benzene at 45 °C and Acetonitrile + Nitromethane at 60 °C ..	62	Chrysophanic Acid and Physcion, The Isolation of, from <i>Rumex hymenosepalus</i> Torr. ..	290
VII. The Systems Nitromethane + Benzene and Nitromethane + Carbon Tetrachloride ..	501	Cole, A. R. H.—See Bayliss, N. S., and Little, L. H. ..	26
Brown, R. D.— The Chemistry of Glyoxaline, Pyrrole, and Pyrazole ..	100	Cole, W. F., and Demediuk, Thaisa— X-Ray, Thermal, and Dehydration Studies on Magnesium Oxychlorides ..	234
Brown, R. F. C.— The Chemical Constituents of Australian <i>Flindersia</i> Species. VII. The Synthesis of Derivatives of Koku-sagininic and Skiamianinic Acids ..	121	Cole, W. F.—See Demediuk, Thaisa, and Hueber, H. V. ..	215
<i>iso</i> Butane and Propylene, Low-Temperature Oxidation of ..	370	Colouring Matters of Australian Plants ..	107, 413
Cadmium, Solid, The Vapour Pressure of ..	485	Cooke, R. G., and Segal, W.— Colouring Matters of Australian Plants— IV. Haemocorin: A Unique Glycoside from <i>Haemodorum corymbosum</i> Vahl ..	107
Calcium Oxychlorides, Studies on Magnesium and ..	215	V. Haemocorin: The Chemistry of the Aglycone ..	413
Carbon, Activated, and Carbon Black, The Quinone-Hydroquinone Character of ..	68	Corrigenda ..	292, 465, 570
		Coumarin, A New ..	125
		Crow, W. D., and Greet, Yolande M.— The Occurrence of Reserpine in <i>Alstonia constricta</i> F. Muell. ..	461
		Crow, W. D., and Michael, M.— The Alkaloids of <i>Kopsia longiflora</i> Merrill. I. Isolation of the Alkaloids ..	129
		Crow, W. D., and Riggs, N. V.— The Alkaloids of <i>Lupinus varius</i> L. I. Isolation of the Alkaloids ..	136

PAGE	PAGE
Crowley, H. C., and Culvenor, C. C. J.— Occurrence of Supinine in <i>Tournefortia sarmentosa</i> Lam. 464	Diene Reaction, The Use of Mannich Base Methiodides in the 144
Culvenor, C. C. J., and Smith, L. W.— The Alkaloids of <i>Erectites quadridentata</i> D.C. . . 556	2,5-Dihydroanisoles, The Conversion of, into 2,3-Dihydroanisoles by means of Potassium Amide in Ammonia . . 96
Culvenor, C. C. J.—See Crowley, H. C. 464	Diols of Carnauba Wax, The . . 432
Curtis, R. G., and Schoenfeld, R.— The Partial Degradation of Ring A of Lanostenol . . 258	Dipole Moment of Acenaphthene, The 562
Curtis, R. M.—See Eastwood, F. W., et al. 552	Donovan, F. W.—See Birch, A. J. 523, 529
Cymerman-Craig, J., and Harri- sson, R. J.— Synthetic Antispasmodics. I. Some 1,1-Diaryl-3-(4'-methyl - 1' - piperazino) - 1-propenes 378	Duncan, J. F.— Enthalpies and Entropies of Ion-Exchange Reactions . . 1
Cymerman-Craig, J., Martin, K. V., and Wailes, P. C.— Synthetic Antispasmodics. II. Some Acyclic Analogues of Papaverine 385	The Thermodynamic Properties of Sulphonated Polystyrene Exchangers Saturated with a Single Cation 293
Cymerman-Craig, J., Rogers, W. P., and Warwick, G. P.— Chemical Constitution and Anthelmintic Activity. II. Preparation of Some Analogues of Phenothiazine . . 252	Eastwood, F. W., Hughes, G. K., Ritchie, E., and Curtis, R. M.— Alkaloids of the Australian Rutaceae: <i>Evodia xanthoxyloides</i> F. Muell. V. A Note on the Constitution of Evolidine with X-Ray Study 552
Cymerman-Craig, J. — See Adams, J. B., et al. 392	Elliott, Patricia—See Birch, A. J., et al. 409
Cymerman-Craig, J.—See Birch, A. J., and Slaytor, M. . . 512	Enthalpies and Entropies of Ion-Exchange Reactions . . 1
David, H. G., Hamann, S. D., and Lake, S. J.— Reaction Kinetics at 30000 Atmospheres 285	<i>Erectites quadridentata</i> D.C., The Alkaloids of 556
Dehydration, X-Ray, and Thermal Studies on Magnesium Oxychlorides . . 234	Ergosterol, The Isolation of, from <i>Stachybotrys atra</i> Corda . 142
Demediuk, Thaisa, Cole, W. F., and Hueber, H. V.— Studies on Magnesium and Calcium Oxychlorides . . 215	Esters, Borate, The Infra-Red Spectra of the 355
Demediuk, Thaisa—See Cole, W. F. 234	<i>Evodia alata</i> F. Muell., Alkaloids of 114
1,1 - Diaryl - 3 - (4' - methyl - 1' - piperazino) - 1-propenes . . 378	<i>Evodia xanthoxyloides</i> F. Muell., Alkaloids of 552
	Evolidine, A Note on the Constitution of 552
	Farrington, K. J., and Warburton, W. K.— Studies in the Chemistry of Phenothiazine. I. Substituted <i>o</i> -Aminobenzenethiols . 545

	PAGE
Fitzgerald, J. S., and Martin, R. J. L.— The Mechanism of the Alkali Catalysed Phenol-Formaldehyde Reaction ..	194
<i>Flindersia</i> Species, Australian, The Chemical Constituents of ..	121, 422
Fluids of Quasi-Spherical Molecules, The Behaviour of ..	21
Fock, W.—See Brown, I. ..	361
Fridrichsons, J.— Intensity Distribution in Long-Spacing X-Ray Patterns of a Series of Even Long-Chain <i>n</i> -Alcohols and <i>n</i> -Acids	339
Garten, V. A., and Weiss, D. E.— The Quinone - Hydroquinone Character of Activated Carbon and Carbon Black ..	68
Gas Mixtures, The Second Virial Coefficients of Some ..	149
<i>Geijera salicifolia</i> Schott, A New Coumarin from the Bark of ..	125
Geijerin : A New Coumarin ..	125
Gell, R. J., Hughes, G. K., and Ritchie, E.— Alkaloids of <i>Evodia alata</i> F. Muell.	114
The Chemical Constituents of Australian <i>Flindersia</i> Species. VIII. The Structure of Maculine ..	422
Glycoside (Haemocorin) from <i>H. corymbosum</i> ..	107
Glycosides, The Synthesis and Properties of Some ..	403
Glyoxaline, Pyrrole, and Pyrazole, The Chemistry of ..	100
Green, J. H., and Walkley, A.— An Interface Reaction of Hexavalent Chromium: The Polarographic Behaviour of HCrO_4^- and CrO_4^{2-}	51
Greet, Yolande M.—See Crow, W. D.	461

	PAGE
Hacobian, S.—See Breyer, B., and Bauer, H. H. ..	312, 322
Haemocorin : A Unique Glycoside	107
Haemocorin : The Chemistry of the Aglycone	413
Hall, J. R., and Plowman, R. A.— Polarography of Some Coordination Compounds of Platinum— I. Hexammineplatinum (IV) and Tris(ethylenediamine)platinum (IV) Ions	158
II. Ions of the Halogenopentammineplatinum (IV) Type	168
Halogenopentammineplatinum (IV) Type, Ions of the ..	168
Hamann, S. D.— The Behaviour of Fluids of Quasi-Spherical Molecules. IV. Concerning Trouton's and Hildebrand's Rules ..	21
Hamann, S. D.—See David, H. G., and Lake, S. J. ..	285
Hamann, S. D., Lambert, J. A., and Thomas, R. B.— The Second Virial Coefficients of Some Gas Mixtures ..	149
Harrison, R. J.— See Birch, A. J.	519
See Cymerman-Craig, J. ..	378
Hatt, H. H., and Lamberton, J. A.— Geometric Isomerism in Some Unsaturated Aliphatic Ketones	506
Heppollette, R. L., Liveris, M., Lutz, P. G., Miller, J., and Williams, V. A.— The Influence of $-I+M$ Groups in Aromatic S_N Reactions	454
Hexammineplatinum (IV) and Tris(ethylenediamine)platinum (IV) Ions ..	158
Hextall, Patricia—See Birch, A. J.	96, 263
Heyrovsky-Ilkovič Equation, Significance of the, and Its Relation to the Production of A.C. Polarographic Waves ..	312

	PAGE		PAGE
Hildebrand's and Trouton's Rules, Concerning	21	Kennard, W.—See Werner, R. L., and Rayson, D. ..	346
Hillis, W. E.—		Ketones, Unsaturated Aliphatic, Geometric Isomerism in ..	506
The Isolation of Chrysophanic Acid and Physcion from <i>Rumex hymenosepalus</i> Torr.	290	Kinetics, Reaction, at 30000 Atmospheres	285
<i>Himantandra baccata</i> Bail., A New Sesquiterpene Alcohol from	550	Kokusagininic and Skiamnianinic Acids, The Synthesis and Derivatives of	121
Hormones, Hydroaromatic Steroid	519	<i>Kopsia longiflora</i> Merrill, The Alkaloids of	129
Hueber, H. V.—See Demediuk, Thaisa, and Cole, W. F. ..	215	Lahey, F. N., and Wluka, D. J.—Geigerin: A New Coumarin from the Bark of <i>Geijera salicifolia</i> Schott	125
Hughes, G. K.—		Lake, S. J.—See David, H. G., and Hamann, S. D. ..	285
See Eastwood, F. W., et al.	552	Lambert, J. A.—See Hamann, S. D., and Thomas, R. B. ..	149
See Gell, R. J., and Ritchie, E.	114, 422	Lamberton, J. A.—	
Hydroxy Acids of Carnauba Wax, The	437	Some Derivatives of 2-Bromoallylamine	289
2-Hydroxy-6-methylbenzoic Acid in <i>Penicillium griseofulvum</i> Dierckx	539	Lamberton, J. A.—	
Hydroxypaeonol, Xanthorrhoein and	263	See Hatt, H. H.	506
—I+M Groups in Aromatic S_N Reactions, The Influence of ..	454	Lanostenol, The Partial Degradation of Ring A of ..	258
Infra-Red Spectra of the Borate Esters	355	Lanthanon Content of South Pacific Phosphorites, The ..	145
Infra-Red Spectra, Solvent Effects in	26	Le Fèvre, R. J. W.—See Chau, J. Y. H.	562
Infra-Red Spectroscopic Study of Naphthalene Substitution, An	346	Le Fèvre, R. J. W., and Narayana Rao, D. A. A. S.—	
Interface Reaction of Hexavalent Chromium, An ..	51	The Calculation of Atomic Polarizations for Benzene and Certain Other Polyatomic Molecules	39
Iodination of <i>N</i> -Methylquinolinium Salts	392	The Dipole Moments of Bromobenzene, Methyl Iodide, and Iodobenzene as Vapours	140
Iodobenzene, Bromobenzene, and Methyl Iodide as Vapour, The Dipole Moments of ..	140	The Polarization of Liquids ..	329
Ion-Exchange Reactions, Enthalpies and Entropies of ..	1	Liquid-Vapour Equilibria ..	62, 501
Isomerism, Geometric, in Some Unsaturated Aliphatic Ketones	506	Liquids, The Polarization of ..	329
Jermyn, M. A.—		Little, L. H.—See Bayliss, N. S., and Cole, A. R. H. . . .	26
The Synthesis and Properties of Some Glycosides ..	403	Liveris, M.—See Heppollette, R. L., et al.	454
Johnson, W. D., and Riggs, N. V.—		<i>Lupinus varius</i> L., The Alkaloids of	136
Solutions of Phenylidoso Acetate	457	Lutz, P. G.—See Heppollette, R. L., et al.	454

PAGE	PAGE
McKenzie, H. A.—	Naphthalene Substitution, An
The Stability Constant of the	Infra - Red Spectroscopic
Tris - 1,10 - phenanthroline	Study of 346
Ferrous Ion 569	<i>peri</i> Naphthenone, Alternating
Maculine, The Structure of .. 422	Current Polarography of .. 480
Magnesium and Calcium Oxy-	Narayana Rao, D. A. A. S.—
chlorides, Studies on .. 215	<i>See</i> Le Fèvre, R. J. W.
Magnesium Oxychlorides,	39, 140, 329
X-Ray, Thermal, and De-	Nitromethane + Benzene and
hydration Studies on .. 234	Nitromethane + Carbon Tetra-
Mannich Base and Methiodides	chloride, The Systems of .. 501
in the Diene Reaction, The	(+)-19-Nor-D-homotestosterone 519
Use of 144	O'Brien, K. G.— <i>See</i> Werner,
Martin, K. V.— <i>See</i> Cymerman-	R. L. 355
Craig, J., and Wailes, P. C. . 385	O'Donnell, T. A.—
Martin, R. J. L.— <i>See</i> Fitz-	Measurement of the Vapour
gerald, J. S. 194	Pressure of Bismuth by a
Massy-Westropp, R. A.— <i>See</i>	Radioactive Tracer Tech-
Birch, A. J., and Moye, C. J. 539	nique 493
Methiodides, Mannich Base,	The Vapour Pressure of Solid
The Use of, in the Diene	Cadmium 485
Reaction 144	Oxidation, Low-Temperature,
Methyl Iodide, Bromobenzene,	of <i>iso</i> Butane and Propylene. . 370
and Iodobenzene as Vapour,	Oxychlorides, Studies on Mag-
The Dipole Moments of .. 140	nesium and Calcium .. 215
<i>N</i> - Methylquinolinium Salts,	Papaverine, Some Acyclic
Iodination of. 392	Analogues of 385
Michael, M.— <i>See</i> Crow, W. D. 129	Peaches, Examination of the
Miller, J.— <i>See</i> Heppollette,	Sugars and Polyols of .. 276
R. L., <i>et al.</i> 454	Peaches, The Organic Acids in. . 280
Molecular Complexity of Polar	<i>Penicillium griseofulvum</i> Dierckx 539
Organic Vapours, The .. 451	Phenol-Formaldehyde Reaction,
Mostyn, K. M. C.— <i>See</i> Birch,	The Mechanism of the Alkali
A. J. 550	Catalysed 194
Moye, C. J.— <i>See</i> Birch, A. J.,	Phenothiazine, Preparation of
and Massy-Westropp, A. J. . 539	Some Analogues of 252
Mukerjee, S. K.— <i>See</i> Birch,	Phenothiazine, The Chemistry
A. J., <i>et al.</i> 409	of 545
Mulcahy, M. F. R., and Watt,	Phenylidoso Acetate, Solutions
I. C.—	of 457
The Self-Retardation of the	Phosphorites, South Pacific, The
Autoxidation of Benzal-	Lanthanon Content of .. 145
dehyde 564	Phycion, The Isolation of, from
Murray, K. E., and Schoenfeld,	<i>Rumex hymenosepalus</i> Torr. . 290
R.—	Platinum, Polarography of
Studies of Waxes—	Some Coordination Com-
IX. The Normal Alcohols	pounds of 158, 168
of Wool Wax .. 424	Plowman, R. A.— <i>See</i> Hall,
X. The Diols of Carnauba	J. R. 158, 168
Wax 432	
XI. The Hydroxy Acids of	
Carnauba Wax .. 437	

	PAGE		PAGE
Polar Organic Vapours, The		Reduction by Dissolving Metals	96, 512
Molecular Complexity of ..	451	Reserpine in <i>Alstonia constricta</i>	
Polarization of Liquids, The ..	329	F. Muell., The Occurrence of	461
Polarizations, Atomic, for		Resins, Anion-Exchange, The	
Benzene and Polyatomic		Separation of Acids on ..	267
Molecules, The Calculation of	39	Resins, Studies on <i>Xanthorrhoea</i>	263
Polarographic Behaviour of		Reynolds, T. M.—	
HCrO_4^- and CrO_4^{2-} , The ..	51	See Anet, E. F. L. J.	267, 280
Polarography of Some Co-		See Ash, A. S. F. ..	276, 444
ordination Compounds of		Rheosmin	534
Platinum	158, 168	Ridge, M. J.—See Batten, J. J.	370
Polarography, Theory of Al-		Riggs, N. V.—	
ternating Current ..	312, 322	See Crow, W. D. ..	136
Polyols and Sugars of Apricots,		See Johnson, W. D. ..	457
Peaches, Pears, and Apples		Ritchie, E.—	
	276, 444	See Eastwood, F. W., et al.	552
Polystyrene Exchangers, The		See Gell, R. J., and Hughes,	
Thermodynamic Properties of		G. K.	114, 422
Sulphonated, Saturated with		Rogers, W. P.—See Cymerman-	
a Single Cation ..	293	Craig, J., and Warwick, G. P.	252
Propylene, and <i>iso</i> Butane, Low-		<i>Rumex hymenosepalus</i> Torr.,	
Temperature Oxidation of ..	370	The Isolation of Chrysophanic	
Pyrazole, Glyoxaline, and		Acid and Physcion from ..	290
Pyrrole, The Chemistry of ..	100	Ryan, A. J.—See Bauer, L., and	
		Birch, A. J.	534
Quasi-Spherical Molecules, The		Schoenfeld, R.—	
Behaviour of Fluids of ..	21	See Curtis, R. G.	258
<i>l</i> -Quinic Acid from Apricots,		See Murray, K. E.	424, 432, 437
The Isolation of	267	Segal, W.—See Cooke, R. G.	
Quinone and Hydroquinone,			107, 413
Alternating Current Polarog-		Seshadri, T. R.—See Birch,	
raphy of	467	A. J., et al.	409
Quinone - Hydroquinone		Sesquiterpene Alcohol, A New ..	550
Character of Activated		Skimmianinic and Kokusa-	
Carbon and Carbon Black,		gininic Acids, The Synthesis	
The	68	of Derivatives of	121
Quinones, Natural, The Struc-		Slaytor, M.—	
tures of	529	See Birch, A. J.	144
		See Birch, A. J., and Cymer-	
Radioactive Tracer Study of		man-Craig, J.	512
the Behaviour of Long Chain		Smith, F.—See Brown, I.	62, 501
Organic Molecules on Solid		Smith, L. W.—See Culvenor,	
Surfaces, A	173	C. C. J.	556
Radioactive Tracer Technique,		<i>Stachybotrys atra</i> Corda, The	
The Vapour Pressure of		Isolation of Ergosterol from	142
Bismuth by, A	493	Sugars and Polyols of Apricots,	
Rajagopalan, T. R.—See Birch,		Peaches, Pears, and Apples,	
A. J., et al.	409	An Examination of the ..	276
Ralph, C.—See Adams, J. B.,		Sugars and Polyols of the	
et al.	392	Apricot Fruit	444
Rayson, D.—See Werner, R. L.,		Supinine in <i>Tournefortia sar-</i>	
and Kennard, W.	346	mentosa Lam., Occurrence of	464

PAGE	PAGE
Thermal, X-Ray, and Dehydration Studies on Magnesium Oxychlorides	234
Thermodynamic Properties of Sulphonated Polystyrene Exchangers Saturated with a Single Cation, The	293
Thiols, <i>o</i> -Aminobenzene-, Substituted	545
Thomas, R.— The Isolation of Ergosterol from <i>Stachybotrys atra</i> Corda	142
Thomas, R. B.—See Hamann, S. D., and Lambert, J. A.	149
<i>Tournefortia sarmentosa</i> Lam., Occurrence of Supinine in	464
Tris - 1,10 - phenanthroline Ferrous Ion, The Stability Constant of	569
Trouton's and Hildebrand's Rules, Concerning	21
Vapour Pressure of Bismuth by a Radioactive Tracer Technique, The	485
Vapour Pressure of Solid Cadmium, The	493
Varadarajan, S.—See Birch, A. J., <i>et al.</i>	409
Vickery, R. C.— The Lanthanum Content of South Pacific Phosphorites	145
Vines, R. G.—See Bennett, L. A.	451
Virial Coefficients of Some Gas Mixtures, The Second	149
Wailes, P. C.—See Cymerman-Craig, J., and Martin, K. V.	385
Walkley, A.—See Green, J. H.	51
Warburton, W. K.—See Farrington, K. J.	545
Warwick, G. P.—See Cymerman-Craig, J., and Rogers, W. P.	252
Water-Soluble Constituents of Fruit	267, 276, 280, 444
Watt, I. C.—See Mulcahy, M. F. R.	564
Wax, Carnauba	432, 437
Wax, Wool, The Normal Alcohols of	424
Waxes, Studies of	424, 432, 437
Weiss, D. E.—See Garten, V. A.	68
Werner, R. L., Kennard, W., and Rayson, D.— An Infra-Red Spectroscopic Study of Naphthalene Substitution	346
Werner, R. L., and O'Brien, K. G.— The Infra-Red Spectra of the Borate Esters	355
Williams, V. A.—See Heppollette, R. L., <i>et al.</i>	454
Willis, D.—See Adams, J. B., <i>et al.</i>	392
Wluka, D. J.—See Lahey, F. N.	125
Wool Wax, The Normal Alcohols of	424
<i>Xanthorrhoea</i> Resins, Studies on	263
Xanthorrhoein and Hydroxypaeonol	263
X-Ray Patterns of a Series of Even Long-Chain <i>n</i> -Alcohols and <i>n</i> -Acids, Intensity Distribution in Long-Spacing	339
X-Ray, Thermal, and Dehydration Studies on Magnesium Oxychlorides	234
Young, J. E.— A Radioactive Tracer Study of the Behaviour of Long Chain Organic Molecules on Solid Surfaces	173